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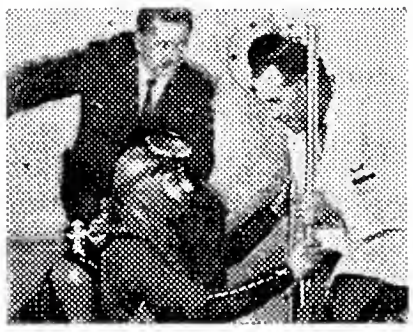

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Guest Editorial

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Dr. Steiner is a graduate of Liverpool University, Faculty of Medicine. She practiced as a General Practitioner until she came to The University of Toronto where she received her Doctorate of Psychiatry. At present she is an Assistant Professor in the Department of Psychiatry, University of Toronto, staff psychiatrist at the Clarke Institute of Psychiatry, Chairman of the Gender Identity Project, and Co-ordinator of Post-Graduate Education at the Clarke Institute.

To discuss sex is to speak about one of the most personal and intimate topics even if this is done within the sanctity of the doctor-patient relationship. All too frequently, attitudes and misconceptions are conveyed to the patient implying moralistic judgements which increase the patient's own anxiety and reinforce his reticence to talk about that which bothers him deeply — namely, his sexual experiences. Although the physician is looked upon as the expert with specialized knowledge, in the sexual area at least he is poorly educated, often unsure of his competency to discuss the patient's sex life. The result is, at worst, an avoidance of the area in history taking or, at best, a superficial questioning by the doctor who is then satisfied that he has explored the sexual quicksands adequately, and gratefully closes the door to further discussion. This is particularly so in dealing with the older patient because in this age group more than any other we are unsure as to what is normal or expected behaviour. Unconsciously, to the physician, the older patient represents a parental figure thus adding a further barrier to communication. Clouding the whole area of sexuality is the lack of adequate language with which to communicate about common sexual difficulties. On the one hand is cold, clinical terminology, on the other what are regarded as vulgar or colloquial descriptive phrases.

Sexual norms may be defined as the dominant behaviour patterns which exist in any given society and will vary from culture to culture. Epidemiological studies, such as Kinsey's[1], are valuable but statistics are dependent on the information people are willing to disclose and are further distorted by what they remember.

Many factors are involved in psychosexual development. Money[2] lists seven variables, five physiological and two psychological, which determine gender identity; providing all variables are congruent though the assigned sex and sex of rearing these are the vital determinants of adult sexual behaviour. Research workers are investigating this area but it is apparent that only the tip of the iceberg has been explored. Comprehensive review articles such as Gadpaille's[3] underline this fact.

Psychiatry owes much to Freud[4] and not least of all to his theory of psychosexuality. Freud liberated modern woman by establishing the respectability of the female orgasm. Unfortunately he also bequeathed

the myth of the vaginal versus the clitoral orgasm, the former being the prerequisite for the mature woman whilst the emotionally immature female is capable only of the latter. This myth stood unchallenged until recently when Masters and Johnson[5] destroyed the validity of this concept and showed that orgasm is a "total body response with marked variation in reactive intensity and timing sequence", and that all females who reach the plateau phase are potentially capable of orgasm. Indeed, the major contribution made by Masters' and Johnson's unique study of human sexuality has been the destruction of numerous myths and phantasies which have grown up around sex with all the accompanying social and cultural overtones — truly, masturbation does not lead to madness.

Gynecology is one of the many fields which illustrates clearly the interrelationship between psyche and soma as exemplified by such diverse conditions as premenstrual tension, habitual abortion and pseudocyesis. The sexual area shows many psychosomatic problems from impotence, through incompatibility of sexual drives to the so-called anorgastic female. Hence the immense importance of being able to take a sexual history without anxiety and embarrassment on the part of the physician. His own ease in the situation is reflected to the patient who in turn will feel reassured and be able to share those problems which have plagued him for so long but about which he feels he cannot, or should not, ask for help.

Sexual maturity is defined by Calderone[6] as "the use by every individual of his or her sexual faculty in mature, creative and responsible ways". In this issue, the students have taken one such step towards that goal. Let the teachers be ready to enter into a meaningful dialogue with them to the mutual benefit of all.

BIBLIOGRAPHY

1. Kinsey, Pomeroy, Martin and Gebhard: "Sexual Behaviour in the Human Male" and "Sexual Behaviour in the Human Female".
2. Money, John: "Sex Errors of the Body".
3. Gadpaille, Warren J.: "Research into the Physiology of Maleness and Femaleness". Arch. Gen. Psychiat., Vol. 26, March 1972.
4. Freud, S.: "Three Essays on the Theory of Sexuality".
5. Masters and Johnson: "Human Sexual Response".
6. Calderone, Dr. Mary: Director of Sex Information and Education Council of the United States.

Medical Perspectives on Therapeutic Abortion in Ontario

Marion Hutt, B.A., 7T3
and *Paula Chalmers*, 7T3

With the growing demand for therapeutic abortions in Ontario since the revision of Canadian abortion laws in 1969, it has become increasingly important that the attitudes of doctors toward the abortion situation be heard, since it is the medical profession which, rightly or wrongly, is called upon to sanction and perform these abortions.

In this article we intend to present the spectrum of opinions expressed by individual practitioners in the province about therapeutic abortion in Ontario. Our information was garnered from a survey undertaken in the summer of 1971 by ourselves and five other undergraduates of this faculty with the help of two staff advisors from the department of Behavioural Science. The survey was conducted by questionnaire among the members of the Ontario College of Family Physicians and consisted of two parts. The first was a series of questions seeking to obtain both facts and opinions for statistical purposes; the second part was simply a blank page upon which doctors were invited to comment on *any* aspects of their feelings and experiences pertaining to therapeutic abortions. It is their spontaneous comments, revealing the basic concerns about therapeutic abortion from a *physician's* point of view, that form the basis for this article. Because of the enthusiastic response to our invitation for comments, it is impossible for us to present every single one in an article of this length. Rather, we have tried to select a representative sampling of all the different points of view. The opinions presented do not necessarily correlate with our own.

It is interesting background information that during the summer of 1971, while the aforementioned study was being conducted, the Canadian Medical Association held its annual meeting at Halifax during which the members passed nine resolutions regarding therapeutic abortion[1]. One resolution proposed "that Section 237 of the Criminal Code be further amended so that all reference to therapeutic abortion committees be omitted," and another stated that "if society should decide that the indications for the performance of abortions should include other than those involving a medical opinion, society should be responsible for providing special facilities and staff for carrying out the procedure when it follows from these further indications".

Because frequent reference is made during this article to the new law (which at the time of the survey had only been in effect for one and a half years) a brief review of the law as it now stands is perhaps in order at the outset. Under Section 237 of the Criminal Code, abortion in Canada is still illegal, except under the following conditions:

—the abortion must be performed by a qualified medical practitioner in an accredited or approved hospital;

—the practitioner must first receive a certificate in writing from the therapeutic abortion committee of that hospital, stating that the continuation of the patient's pregnancy "would be likely to endanger her life or health";

—the therapeutic abortion committee must consist of not less than three members, each of whom must be a qualified medical practitioner;

—the practitioner performing the abortion cannot sit on the committee.

A point to note is that no hospital is required by law to establish such a committee.

RELIGIOUS AND MORAL CONSIDERATIONS

Because therapeutic abortion involves taking a life, or at least removing the potential for life, it contravenes some of our society's most fundamental religious and moral principles, and it is not surprising therefore that religious and moral beliefs formed the core of many opinions expressed by individual physicians arguing against therapeutic abortion. One doctor simply stated:

> Abortion is murder.

And another:

> You *do* interrupt life.

Yet another doctor explained:

> Basically, I am against abortion because I have a high respect for life (human especially more so). There is no fundamental difference in a living foetus, embryo, or baby (it's all human life to me). I wish I could convince all of my patients of the merit of this moral value.

One doctor explained that in his view, abortion could be morally acceptable under only one circumstance:

> My personal view on the subject of abortion is the same as my view on the taking of any human life — it's only justified if it poses a threat to some other human life.

A number of doctors opposing abortion on religious grounds did however indicate that they would refer their patient elsewhere for consideration, as did this G.P.:

> I believe the living fetus has a soul. I would not perform an abortion under *any* circumstances. If medically indicated, I would refer the patient to a Protestant gynecologist who could put the case forward to an abortion committee.

On the other hand, some of the physicians who were more liberal in their views, emphasized that religious factors should not influence a doctor's decision:

> If a woman wants an abortion *she* is the one to judge this and if possible it should be done. Religion should not be a factor influencing the doctor's decision.

And a similar opinion was received from another doctor who felt that physicians unable to acquiesce to abortion on religious grounds had a responsibility to refer their patients elsewhere:

> Abortions should be available. Public taboo positions have modified. Individual morality, rights, convictions and desperations should be recognized. The physician should be sure the individual has considered and is knowledgeable of the factors on which she would base her decision as well as her emotional overtones will allow. The physician should point out the physical and overall personal welfare probabilities, and then decide on the best and safest procedure and followup to meet the patient's need (as seen by the patient), unless he himself has personal scruples which prevent a fair consideration, decision and action on behalf of the patient, in which case he should have referred the patients elsewhere without a moralistic or religious lecture.

MEDICAL ETHICS

Closely related to the moral aspects of the therapeutic abortion issue are the actual medical ethics involved in the taking of life. Several doctors stated that they could not reconcile their professional ethics with the practice of therapeutic abortion. As expressed by one G.P.:

> I entered and I want to stay in the profession in order to save and prolong life, not to destroy it. Every day I stand up against death; I am not going to provide it.

One of the eloquent denouncements came from a physician who stated:

> I think abortion is wrong, because contrary to all the training and work of a physician it aims at destruction of life. For the physician I think the act is repugnant. I don't perform abortions, nor do I stand in the way of women who want them, beyong giving my advice. There is a tendency among phychiatrists of my acquaintance to "rubber-stamp" most applications sent to them. I think this is wrong and perhaps the only area in medicine where physician judgement is abandoned.

Another doctor declared earnestly:

> I am against doctors performing abortions. I feel that there is less reason to perform abortion than euthanasia. Once doctors start to take lives, then I think a major portion of our credibility has been lost. I could go on for hours.

ILLEGAL ABORTION

Although therapeutic abortions are available in Canada, doctors are aware that numbers of unsafe illegal abortions are still being done. Several doctors indicated that although they were opposed to therapeutic abortions for reasons of professional or personal ethics, they felt an obligation to help their patients obtain a therapeutic abortion rather than take the risk of their patients seeking an illegal one. One doctor stated:

> If the patient is emphatic about it — that she will not carry the pregnancy no matter what I can do — and I feel that she would procure an illegal abortion then she should be referred to an abortion clinic for her own safety.

Despite the fact that he referred women for therapeutic abortions, one G.P. was not happy with his actions:

> I am not for abortion on demand. However, if a patient who is pregnant comes to me for advice or a request, and I am convinced that she is going to get an abortion, I will help her obtain one in what I believe to be the safest, cheapest and most convenient way — depending on the indications. In addition, I do not suggest abortion as a possibility but wait for the patient to suggest it. My attitude is — it's O.K. as long as my hands aren't dirtied by it — not the best attitude, but I have to sleep at night.

Another doctor, also opposed to therapeutic abortions, admitted:

> When confronted with the situation one tends to mellow somewhat. I feel we have a moral obligation to see that our patients receive the professional care and counselling they are entitled to. And in this respect I would sooner recommend and refer them to a gynecologist and hospital that I know, where at least they will receive excellent care and still be available to myself for follow-up counselling and rehabilitation.

DANGERS TO SOCIETY

A number of doctors in their responses focused on the possible dangers for society, should therapeutic abortions become widely available. One doctor decried the practice, saying:

> Abortions are a sign of moral decay in our society that will lead someday to euthanasia and other socially destructive procedures. I am ashamed of a profession that has set itself up as healers and preservers of life, and yet goes ahead to destroy its potentially healthy citizens.

A similar opinion was expressed by another G.P. who stated:

> I heartily disagree with abortion in healthy intellectuals because the future brains and leaders of the human society are among these categories. Such an abortion means a great loss to the human race.

The loss of the family unit was feared by another doctor:

> I feel we should resist abortion on demand as it indi-

> cates a huge step toward complete moral breakdown of our society and the impending possible loss of the family unit as the basis of society.

One of the harshest indictments concerned itself with the possible threat of therapeutic abortion as a means of population control:

> Those who justify abortion through reasons of popular sentimentality are guilty of a type of abject cynicism which can only lead to more cynical means of population control in the future.

In contrast, at least one doctor felt that there would be no question of the necessity of therapeutic abortions in the overcrowded world of the future:

> With the population explosion staring us in the face, I calmly anticipate that by 2000 A.D. not only will a marriage license be required but also a reproductive license so that if a couple has more than two children (to replace themselves in this world) abortion would be mandatory.

UNWANTED CHILDREN

Another aspect of the therapeutic abortion issue commented upon was the desirability of bringing unwanted children into the world, and various arguments were invoked on both sides:

> Prevention of pregnancy is best, but abortion is necessary. Unwanted children are the most pathetic patients I have, and I feel that they grow into unhappy and poorly productive adults.

And another felt the same way, adding the concept that a woman should not be "forced" to carry an unwanted child:

> No woman should be forced to carry a child she does not wish. The child deserves to be wanted. There are far too many unwanted children in the world and they are the source of most of our social ills. Our jails are full of them. Our welfare rolls are full of them. Many of them are in mental hospitals and the greatest number are the people who can't cope — our so-called neurotics.

Opposition to the above arguments was presented by a physician, whose experience with unwanted children seemed the opposite of his colleague's:

> Few children are rejected totally when they arrive.

He went on to say:

> History shows that some of the world's most worthwhile people, who contributed significantly to society have been either illegitimate or sprang from an unwanted pregnancy.

Another doctor simply commented:

> We *do miss* the adoptable children:

WHO SHOULD MAKE THE DECISION?

Despite the doctors' personal feelings about therapeutic abortions, by far the greatest majority expressed a deep concern regarding who should actually make the decision for or against abortion in each particular woman's case. As the law now stands a woman first sees her family physician or gynecologist who then presents her case before an abortion committee of at least three doctors. The confusion arising initially from the mechanics of the new law in practice was evident in the reply from one doctor who felt that abortion in Canada was still illegal:

> Since I received letters from New York City where abortions (legal) are available, I referred some patients to New York for help (since it's not legal in Canada) and saved a lot of time and trouble to go through the local abortion committee.

The abortion committees came under heavy fire generally. As one physician succintly put it:

> The abortion committees are a farce.

Another commented:

> The abortion committees are so deluged with requests that in many instances they have merely become "rubber-stamp" committees. They do not have the time to study the pros and cons of a request for abortion and "pass" it or "fail" it mostly on their knowledge or connections with the physician requesting abortion.

A similar experience with the committee was cited by another doctor:

> 100% of abortion requests are granted by our therapeutic abortion committee. Screening therefore, is done at the family doctor level.

In some hospitals abortion committees have been abandoned altogether:

> The medical staff of our local hospital have had many detailed discussions on the abortion problem, and recently decided not to have an abortion committee according to the Act. It seems generally agreed that the Act is bad — doctors alone should not have to decide socio-economic problems.
>
> It follows from the above that no abortions would be done at this hospital.

It was our impression that few doctors indeed supported the idea of abortion committees. Who, then, should make the decision? Most doctors who supported the practice of therapeutic abortion felt that the decision should be shared by the patient and her physician:

> Abortion should be taken out of the Criminal Code, should be a matter between a patient and her own physician.

The necessity for physician involvement in the actual decision was stressed:

> I would still like to consider each request on its own grounds — if only to ensure that the patient has worked through her thoughts on it.

And similarly:

> Abortion should be allowed when the patient, after counselling and discussion with her physician, says she cannot carry on happily and in a normal mental state with her pregnancy and expected child.

The abortion committee was dismissed as superfluous and the role of the doctor as medical and psychological adviser was advocated by another GP:

> I feel that if a patient has had all alternatives explained to her, and risks of having an abortion performed, especially psychological, and she still feels it is the best solution for her particular situation then no further intervention by psychiatrists, abortion committees, etc., should be necessary as they currently are.

Indeed, many of the physicians were reluctant to be involved in the decision-making process in any way other than an advisory capacity:

> Ultimately the decision must be taken almost completely out of the hands of medical people. The doctor should be in the role of advisor only, except when it would be endangering the woman's health to have the abortion done.

And another:

> Ours is not to make moral judgements — these must be made by the individual and society.

The onus of decision-making was reflected in the statement by one doctor:

> I do not like to play God and decide who should have or who should not have an abortion.

And some doctors wished to rid themselves of the responsibility altogether:

> I don't think doctors have any business deciding who should have abortions.

While a number of doctors preferred not to make decisions for their patients, many remained reluctant to leave the decision entirely up to the patients, i.e. abortion on demand. One doctor proposed:

> The law should specifically allow socio-economic reasons but not on demand.

And a stronger reaction against the idea of abortion on demand came from the doctor who declared:

> I resent the fact that a patient can demand that I do something to her which may jeopardize her life and/or future for minor reasons such as ill-timed pregnancy.

Part of the opposition to "abortion on demand" stems from the doctors' distaste for performing the actual procedure:

> I assisted at two hysterotomies at about fourteen to sixteen weeks. The fetus looks human and you realize what you have done. For this reason I don't feel that abortions on request without good reason is indicated.

And another GP analyzed the situation as follows:

> I do not believe that abortion on demand should be allowed because of the position it places physicians as medical technicians. However I don't feel that doctors as a whole would ever allow themselves to be forced into doing a surgical procedure such as this when the patient demands it. Physicians' personalities are such that this rubs them the wrong way. Also having discussed this with several surgeons who have carried out this procedure they felt badly and rather ill at ease on curetting out "bits and pieces" of the human fetus. It is definitely an unpleasant procedure for all concerned.

Some physicians advocated the establishment of abortion clinics where only those doctors who did not have a personal repugnance to performing abortions would actually do the procedure:

> I do not do abortions myself, but feel that proper clinics should be set up in Ontario where women could obtain abortions safely and at reasonable cost, similar to the program in New York State.

Further objections to "abortion on demand" related to the physician's sense of autonomy, as in this response:

> A patient should be free to have an abortion if that is her wish, but the doctor must also be free to agree or disagree — a woman's decision must not *ipso facto* commit the physician to the same decision.

And a similar stand was taken by one doctor who declared:

> Abortion on demand? Never! Doctors are people like everyone else and must be able to think and act freely within their training and profession.

This particular doctor went on to add:

> I ask myself, "If it was my wife or daughter, what would I do?"

Several physicians felt so strongly against "abortion on demand" that they recounted having dismissed patients from their practice who came in requesting abortions for reasons unacceptable to the physician:

> If the patient tries to force or trick an abortion through this practice — they are not permitted to return — as I consider the parents and myself are on different wavelengths as regards our attitudes toward living things.

Another doctor blamed the government for making abortions more easily accessible:

> If it is now government policy to supply abortion virtually on demand, I think they should hire their own abortionists and leave me out of it. I am not happy recommending abortion for anything except serious physical or psychiatric disease but go along with the requests as a sign of the changing times.

Despite the strong opposition put up by some doctors against "abortion on demand", others supported the concept fully:

> In the climate of individual sexual emancipation — I feel this is and should be the decision of the individual whether or not a therapeutic abortion is required.

In many cases no reasons for supporting "abortion on demand" were given, just a statement of a feeling for or against:

> I feel that abortion on demand is fair. I think that the abortion laws in Canada should be liberalized still further.

Another stated:

> Abortion should be available on demand as in N.Y. State. In effect abortion is available in my area, but there is the preliminary farce of abortion committees to go through.

One doctor reasoned that the procedure was easy and shouldn't be withheld:

> I feel that abortions are a matter to be decided upon by the patients. Medical technology had advanced to a degree that makes abortion a simple matter. We have no right to force a woman to keep an unwanted child.

Another supporter focussed instead on the disparity of availability of therapeutic abortions in Ontario from centre to centre.

> If abortion on demand is to be available in Ontario, then it must be available to all — not just those who can get to the "right" hospital. The onus of decision regarding abortion should be lifted from the physician and transferred to the individual.

Still another group of doctors take the view that abortion is strictly a social problem and that the decision as to who is entitled to a therapeutic abortion is to be made by neither the doctor, nor the individual patient, but by society as a whole:

> I believe that abortion is not primarily a medical problem; it is a social problem, i.e. it belongs to society in general.

And certainly the most interesting and thought-provoking suggestion for deciding on a policy toward therapeutic abortion was offered by the physician who stated:

> I feel that (abortion) is the particular concern of the female population and that this matter should be decided by a referendum of all females of voting age (and this should be eighteen).

MIXED FEELINGS

The impression forthcoming from a large number of responses was that most doctors have mixed feelings about therapeutic abortions, typified by the response of one doctor:

> I feel abortion in our society is a necessary evil. People should be allowed to determine whether or not they want a child (but I don't like it personally).

Several described how they actually deal in everyday practice with patients who come to them requesting abortion:

> Abortions are extremely distasteful to recommend. If pressed by the patient, I simply refer these patients (a) to the local abortion committee which I know will perform or accept them to age 16 years or for obvious medical problems, or (b) to agencies in New York. I explicitly avoid recommending — I simply tell the patient an address, name or telephone number and he/she takes it from there.

By contrast another doctor was far less hesitant about recommending his patients for a therapeutic abortion:

> If a female comes to my office and states she wishes an abortion I take the next step to try to fulfil her request. I make no promises. One never knows when the abortion committee will turn down a request. However I personally think that the abortion committee thinks the same as I do because no request has been turned down. Therefore, if a girl wants a baby — she keeps it. If a girl doesn't want a baby — I believe that her pregnancy should be interrupted. As far as I am concerned the various reasons are excuses.

And one doctor resigned himself to the present situation as he perceived it:

> Dislike concept of abortion but it seems to be acceptable to many women in the community. Disagree with "abortion on demand" but this is really what we have.

ALTERNATIVES

Although most doctors simply came out for or against therapeutic abortion, or somewhere in the middle, a few chose instead to propose alternatives to abortion, and our discussion would not be complete without mentioning them.

Some advocated financial help for the women concerned:

> More thought must be given to financial assistance for pregnant women to enable them to complete a pregnancy without undue hardship rather than con-

sidering every unwanted pregnancy as a logical candidate for abortion.

Another doctor thought that counselling the pregnant woman to give up her baby for adoption was the solution:

> I believe the answer is energetic aggressive encouragement of birth control to all ages who are exposed. I believe that with very few exceptions abortion is unnecessary and irresponsible. Most women can be helped to face reality if someone will take time to help. Abortion generally is the escape of the irresponsible from the consequences of their actions. My unwed mothers seem to be quite as satisfied with adoption as other doctors' patients are with abortions.

By far the most emphasis, however, was placed on the need for contraception and the prevention of unwanted pregnancy. One doctor urged:

> The profession needs to take more active leadership in contraception and courses in human relations and human sexuality.

Another doctor proposed specific suggestions:

> I believe that the solution to this problem lies in prevention. I believe that intensive programs in sexual anatomy and physiology and contraception, together with family living studies should begin no later than age 13. I believe that research should be directed at establishing the earliest safe age for girls to begin the oral contraceptives, and once established, I believe that widest possible distribution should be attempted, in keeping with strict medical standards of examination, control and review of indication.

And one doctor summed it all up by saying:

> What is needed is family planning — not abortion.

CONCLUSION

From the foregoing morass of commentary, one can grasp just how complex and emotionally-charged an issue therapeutic abortion is. There are cogent arguments on both sides of the issue and in the responses presented here one can see the reflection of a wide spectrum of moral and ethical reasoning. The view points expressed vary as widely as the personalities of the men and women who hold them.

One fact that stands out clearly is that there is no such thing as the "medical profession's attitude" toward abortion. There are only individual doctors, some rigidly resisting liberalization of the law, some heartily advocating it, and many in the grey space in between, slowly resigning themselves to the demands of a rapidly changing society.

At present the federal abortion law, because of its wording, is being interpreted by the physicians of the province according to their own personal criteria, so that where one doctor sees no justification for therapeutic abortion in *any* patient, another doctor will be able to justify to himself/herself "abortion on demand" — both under the same law.

Whether therapeutic abortion becomes more or less available than it is now remains to be seen. And the future role to be played by our profession, which regretably has often lagged in becoming involved in social and political issues affecting itself, also remains to be seen.

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REFERENCES

1. C.M.A. Journal, June 19, 1971, Vol. 104.

How I Treat Vaginal Discharges

Mel Borins, 7T3

Vaginal discharges are common. calamatous and recurrent. The bugs in the vagina bug the patient, her spouse and the doctor. Many a woman must carry her discharging vagina from doctor to doctor seeking relief. We assume doctors are understanding, aggressive and obsessional. What we need is a simple approach.

The vagina is a structure lined by epithelium and lives happily with many commensurate organisms. It is normally moist, containing secretions and desquamated epithelial cells. There is also a normal discharge from other structures such as the secretions of Bartholin, sebaceous, sweat and apocrine glands of the vulva; mucoid discharge from the cervix; watery secretion from the uterus and even secretions from the Fallopian tubes. So when a woman complains that her vagina is discharging we must first decide if this is a variation of normal or pathological. It is normal for a female to notice increased vaginal secretions during her first week of life; at puberty; at the time of ovulation; premenstrually, during sexual excitement; and with stress or anxiety. Cognizant of normality we can attempt to assess pathology. History, physical examination, laboratory tests are all equally necessary and helpful to decide treatment.

HISTORY

First we would like to know what has happened either to the person or to the vagina which would upset the normal homeostatic process. From the moment we meet the woman and with each question we ask, we should begin to formulate an opinion of what is going on in her vagina.

The history should include the patient's occupation, her sexual habits and her general hygiene. Specifically we might enquire about changes in sexual activity such as the frequency of coitus, oral-genital contact and the number and type of partners. We must take an adequate functional inquiry also asking about past health and drug medications. This is important, since we know debilitating diseases, diabetes, broad spectum antibiotics or birth control pills can make a person more susceptible to monilial infections.

Locally we should ask about irritative or traumatic factors such as the use of douches, spray deodorants, bubble baths, tight panty hose or the introduction of some foreign objects into the vagina. These and many more things can cause vaginal problems. Similarly we must enquire about symptomatology of other reproductive tract structures. For example cervicitis, carcinoma of the cervix or uterus, or P.I.D., can present with a vaginal discharge.

After we have explored these general and local causative factors we can ask about the symptomatology of the discharge itself.

Ask about colour, consistency, amount. If the patient said she had "a cheesy, white, curdy discharge" you would consider monilia. However if the patient said she had "a foamy, greenish-yellow discharge which has been staining my panties and running down my leg" you might think of a trichomonas infection.

You asked about odour and pruritus. Trichomonas tends to be smellier and monilia is agonizingly itchy.

Is there dysuria, frequency, dyspareunia? Gonococcus classically is associated with dysuria and frequency whereas trichomonas, monilia and atrophic vaginitis make intercourse painful.

Ask about any associated symptoms like fatigue, depression, "hot flashes", bleeding and abdominal pain.

After the history we should have a diagnosis in mind and our physical examination and laboratory tests will either support or confuse us.

PHYSICAL EXAMINATION AND LABORATORY TESTS

We assess the patient generally by doing an adequate physical examination. Then do a thorough pelvic examination.

LOOK

1. External Genital

   Examine external genitalia looking for personal hygiene, vulvitis, excoriations from scratching, atrophy, monilial plaques (white lesions on red base which bleed when scraped), other sores or ulcers (herpes, syphilis, etc.). Examine urethra, skene's glands, for inflammation or discharge (signs of G.C.).

2. Insert non-lubricated speculum and visualize **cervix.**
   — an inflamed cervix with a yellowish discharge emanating from it makes one suspect G.C.
   — "strawberry" appearance of punctate red lesions on a scarlet mucosa is classically trichomonas
   — monilial plaques may be visible
   — other pathology like cervicitis, ulcers are important.

3. Laboratory Tests

   1. Pap smear if not done in the last year
   2. Cervical swab for Gram-stain to look for —
      a) G.C. (gm-neg. intracellular diplococci)
      b) candida buds
      c) other bacteria
   3. Vaginal swab for hanging drop looking for —
      i) motile flaggelated *trichomonas*
      ii) long thin hyphae and buds of *candida* (KOH)
      iii) bacteria and pus cells.
   4. Cervical and post vaginal vault swab for culture and sensitivity and G. C. culture on special medium.

4. While withdrawing speculum examine four vaginal walls looking for foreign bodies, type of discharge, monilial lesions or other pathology.

FEEL

Complete pelvic examination feeling for pathology.

SMELL

Your nose will begin to adjust to various odours and will help with the diagnosis.

DIAGNOSIS

Common things being common, the most frequent causes of vaginal discharge other than normal leukorrhea are monilia, trichomonas, non-specific bacterial and gonococcus vaginal infections.

In review classically a woman with a monilial infection may have a history of being on broad spectrum antibiotics or birth control pills, she may be pregnant, have diabetes or some debilitating disease. She complains of a white, curdy discharge which is irritating and intensely *pruritic*. On examination in addition to the characteristic discharge, one may see excoriations resulting from constant scratching and white plaques which bleed easily when scraped, on the inflamed labia or introitus. Buds or hyphae on the wet mount confirms the diagnosis.

The woman with a trichomonas infection will often complain of a profuse foamy yellow discharge which is pruritic and very smelly. The odour and discharge is noted on examination and one may see the characteristic echymosis on the cervix and vaginal wall. On the wet mount one sees the motile flagellated trichomonads. It is important to note that a trichomonas diagnosis should not be made via pap smears.

Gonorrhea must not be ruled out even in the most unsuspecting cases. You may get a history of recent contact or new sexual adventures followed within a week or so by a creamy rather thick vaginal or urethral discharge. The patient may also complain of dysuria and frequency. However it must be remembered that this disease can present atypically and in 50% or more cases may present asymptomatically. Confirmation is made by seeing gram negative intracellular diplococci on gram stain or by growing gonococcus culture.

In the prepubertal female it is wise to keep in mind the possibility of foreign bodies and pinworm infections. Very often there may be contamination of the vagina because the child is incorrectly wiping feces forward.

In the post-menopausal or post-oophorectomy woman atrophic vaginitis is a common predisposing condition and local estrogen therapy is necessary.

Sometimes we cannot find any causative factors or local pathology. The signs and symptoms may not be classical and we cannot identify any organisms microscopically.

We may have to initiate a trial of therapy until our culture results come back. Always remember the patient. They have a reason for coming. It is important to look for a psychological basis when no true pathological diagnosis can be ascertained.

TREATMENT

Once the diagnosis has been made we must educate the patient about what is going on, remove the causative factors, give adequate drug medication and follow-up with return visits.

MONIAL INFECTION

1. Treat predisposing condition.
2. Nystatin (Mycostatin) or Candicidin (Candeptin) vaginal tablets. One tablet inserted in the vagina qam and qhs for two weeks.
3. If this tricky organism hibernates and reappears after treatment (chronic or resistant) treat woman throughout two menstrual periods or you may even have to treat orally as well, with Nystatin.
4. We may eventually wish to resort to Gentian Violet treatment.

TRICHOMONAS

1. ∮ Metronidayole (Flagyl) vaginal inserts, one tablet inserted deep into the vagina once nightly for 14 days **and** Metronidayale (Flagyl) 250 mg. tabs., one tab p.o. tid for 14 days.
2. Treat male partner Flagyl 250 mg. tab. one tab. p.o. bid for 14 days.

GONORRHEA

1. Identify contacts, educate the patient.
2. Aqueous procaine Penicillin G 2.5 million units in each buttock along with 1 gm. of Probenicid one hour before to delay penicilin excretion, or ampicillin 2.5 gm. given at one visit with Probenicid 1 hour before.
3. In penicillin sensitive people use tetracycline 550 mg q6h x 12 days; erythromycin 500 mg q6h x 12 days.
4. Patient must return for repeat negative culture results.

Mixed Bacterial Infections (Hemophilus vaginitis, E. Coli, pseudomonas, streptococcus, staphlococcus)

Non-specific Bacterial Infections

Very often no organism is identified microscopically and we want to treat initially until definite culture and sensitivity return.

1. Sulfaniliamide — Aminacrine — Allantoin (AVC —

(*Continued on page* 65)

An Introduction to Ultrasound in Obstetrics

Marsha Werb, 7T3

Whenever the obstetrician is faced with the question of the induction of labor or Caesarian section, particularly in the case of a complicated pregnancy where the life of the fetus or mother is in jeopardy, a prenatal assessment of fetal maturity, the feto-placental unit and maternal status is essential. For the past 75 years, diagnostic roentgenography has been the favoured technique, but with the outcry by geneticists implicating diagnostic radiation levels as contributing to childhood neoplasia and chromosomal abnormalities, alternative techniques have been sought. This is where the use of reflected ultrasound has gained a following as an easily applied, reproducible, harmless, yet dependable techniqiue.

The usefulness of ultrasound as a diagnostic, therapeutic and surgical tool is now well established since its onset over 25 years ago and new applications are being made with the improvement of apparatus. The work has not been confined to obstetrics alone. It has been increasingly used for the detection of abdominal masses (cystic lesions of kidney and liver, abscesses, tumors, etc.), for the identification of effusions, for valve and ventricular dynamics, in diseases of the breasts, and for detecting abnormalities in the skull and eyes. Pulsed echo-mode sonar is not to be confused with the destructive surgical methods used in Menière's Disease or with the high energy sound used in industry. Rather, it is low energy sound whose physical effects have not yet been proved harmful in short or long term use to the patient or fetus either histologically, functionally or embryologically.

Unlike x-ray which employs high frequency radiation in the electromagnetic spectrum, sonar employs low energy sound wave frequencies above the range of human hearing which can then be propagated under accurate directional control. This produces echoes which return from the reflecting surface; the distance is then recorded and plotted. Each body tissue has its own specific impedance which alters the echo pattern giving varying reflections as the sound passes through different interfaces. All body tissues with the exception of bone and air-filled lung are relatively permeable (good conductors) to the ultrasonic energy which permits visualization of even the deepest body structures unless attenuated by air or bone. The pregnant abdomen thus becomes an especially accessible organ to ultrasonic probing. Fluids are displaced upwards and air-filled bowel moved laterally by the combination of gravid uterus, amniotic fluid and fetus. In the first trimester pregnancy exploration is obtained via urine filled bladder before the uterus has become an abdominal organ. The latter technique is used particularly in the search for the blighted first trimester ovum[1] and the definition of pelvic tumors.

A simplified view of how the actual instrumentation is undertaken will now be described. A pulsed generator within the probe instrument stimulates a crystal to produce brief (2-3 x 10^{-6} sec.) bursts of ultrasound impulses through to the various tissues. In the time interval between emissions the crystal is set to receive the returning echoes along the path of the initiating beam. These echoes produce vibrations within the crystal which are transmitted to the oscilloscope as electrical energy. Those interfaces close to the probe provide early echoes. Those going through tissues of slight 'acoustic mismatch' give a weak echo and those with a greater degree of mismatch a strong echo, e.g. amniotic fluid to fetal skull. The average time for the total ultrasound examination is twenty minutes with less than one-tenth of a minute exposure.

Oscilloscopic display of the ultrasound echo beam takes basically four forms — A-scan, B-scan, B-Scan Compound, and T-M Mode. In the A-Scan the beam is represented as a horizontal line moving across the oscilloscope from left to right with the returning echoes producing a vertical deflection of a height dependant on the strength of the echo. This is the form used to measure biparietal fetal diameter and in neurology for skull echograms. The B-Scan shows the returning echo as a series of dots whose brightness reflect the echo strength. Here the echo signal is applied to the cathode ray tube grid to alter the rate of electron emissions. In this method increasing numbers of interfaces can be noted. With the Compound B-Scan a two dimensional view of the underlying structures can be obtained. A transducer is coupled to the oscilloscope to reproduce a series of B-mode scans with a correct relationship to each other. This is the prime technique used in obstetrical evaluation of pregnancy. The fourth method incorporates a time - motion aspect. The T-M Mode is also a variation on the B-Scan where the background is moved so that a tracing of appropriate moving structures can be obtained, e.g. mitral valve.

In obstetrics particularly a great deal of easily reproducible information can be gleaned from ultrasound scanning. The study of biparietal cephalometry employs the B-Scan to determine position and rotation of the fetal head. A-Scan is utilized for problems with diameter in deeply engaged heads or with direct occipit-posterior positions where direct scan is hampered by the iliac bones. It also gives information with respect to fetal anomalies such as hydrocephaly or anencephaly. According to Cohen[2], a 90% accuracy is obtained where maturity and birth weight are compatible with a biparietal fetal diameter of 9.8 cm or greater. With this knowledge, serial weekly measurements of intrauterine development

can be made for the determination of maturity in the all too common situation of inconsistency between date of last menstrual period and apparent fetal dates. Ultrasound scanning also provides insight into the presence of multiple pregnancies. As early as the second trimester two heads can be seen on a single scan. Placental localization can also be determined as early as the second trimester. It is seen as a clear line between the amnion and uterine wall especially on anterior wall and fundal implantations. The existence of hydatidiform moles or the death of the ovum can be shown by the absence of fetal parts and "snow storm effect" in the case of a mole and failure of growth or echo in the blighted ovum. Recently, amniocentesis is being carried out with the assistance of the scan for areas of fluid pools. The differential diagnosis of cystic and solid masses can be readily made using the scan. However, the status of fetus and placental localization still represents the major clinical application in obstetrics.

In view of the ease with which an ultrasound examination can be performed, the great degree of accuracy in determination of fetal maturity, its relative safety when compared to ionizing radiation, its ability to yield information on the presence of interfaces between and within soft tissues, make it an essential addition to the diagnostic armentarium of obstetrics.

ACKNOWLEDGEMENT

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REFERENCES

1. Donald, I.; Morley, P.; Barnett, E.: The Diagnosis of Blighted Ovum by Sonar. J. Obstet. Gynaec. Brit. Comm. 79:304-310, April, 1972.
2. Cohen, W. N.: The Prenatal Determination of Fetal Maturity by B-Scan Ultrasound. Radiology 10:171-17d. April, 1972.

FURTHER READING

1. Donald, I.: Sonar in Obstetrics and Gynaecology. Yearbook Obstet. Gynaec. 1967-68, pp242-266.
2. Padmakar, P. L.: Application of Ultrasound in Medicine. NEJM, 286, 1317-1318, June 15, 1972.

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vag. suppositories, one inserted twice daily for two weeks.

or

Triple Sulfa Cream (Sultrin) one applicator full qam and qhs for 7 days.

2. If resistant to initial treatment may wish to alternate medications or try Betadine douches.
3. Choose antibiotic according to results of culture and sensitivity. Some doctors advise that bacterial organisms usually inhabit the endocervix and local therapy is ineffective. They recommend treatment with systemic antibiotics.

We sometimes tend to assume that when we prescribe a drug the patient takes it. This can never be assumed in the treatment of vaginal discharges. The vaginal suppositories can be a very messy business. To the patient they often appear worse than the disease itself. Sometimes the patient will take the medication for a few days and when they notice their discharge clearing they will terminate therapy. The discharge will return and the organisms now may be more resistant. Time must be taken to explain how the medication is to be administered and the consequences of not taking the drug. The patient should telephone you if there are any questions or problems.

If during the first skirmish with the vaginal discharge victory is not attained, the physician must regroup his forces and start again.

REASONS FOR FAILURE IN TREATMENT

1. Incorrect diagnosis
2. Patient did not take medication adequately in dosage, duration
3. Resistant organism
4. Underlying causative factor not relieved
5. Additional infection
   e.g. after climinating trich, monilia often follows.

The key is to be as persistent as the infection. The war on vaginal discharges may never be won, but with our current armamentarium the physician is in a better position to put up a jolly good fight!

Carcinoma of the Vulva

R. M. Shier, M.D.

INCIDENCE

Carcinoma of the vulva ranks fourth in incidence among genital cancers and accounts for 3-4% of all primary malignances of the genital tract.

ANATOMY

The vulva is that part of the female anatomy between the genitocrural folds laterally, the mons pubis anteriorly, and the anus posteriorly. It is composed of the labia major, labia minora, mons pubis, clitoris, vestibule, urinary meatus, vaginal orifice, hymen, Bartholin's glands, Skene's ducts and the vestibulovaginal bulbs.

HISTOLOGY

The labia majora are covered by pigmented skin which is richly supplied with sebaceous glands, sweat or eccrine glands, apocrine glands and hair follicles. The outer lining is stratified squamous epithelium consisting of a *basal* layer of cells, a *prickle* cell layer or the stratum malpighii or stratum spinosum, a thin *granular* layer (occasionally absent) the stratum granulosa, and a *horny* layer the stratum corneum. The labia minora are folds of epithelial covered connective tissue that contain little or no adipose tissue. There are no hair follicles, sweat glands are present occasionally and sebaceous glands are prominent. The stratified squamous epithelium is much less cornified than true skin. It merges with the mucus membrane of the vagina. Vaginal mucous membrane consists of non-keratinizing stratified squamous epithelium.

THE LYMPHATICS

The vulva has one of the richest lymphatic networks in the body. Knowledge of anatomical routes of drainage is important for prognosis and treatment of carcinoma of the vulva. Efferent lymph vessels pass in general towards the mons veneris, anastomose with lymphatics of the opposite side of the vulva and then proceed to one or other of the superficial inguinal nodes. The lymphatic supply of the clitoris is variable and some may pass to the presymphysial plexus and from there pass directly to the deep inguinal lymph nodes. The lymph nodes may be classified as follows:

1. *The Superficial Inguinal Lymph Nodes.* These are found in two chains: (a) the *horizontal* group which lie beneath the superficial fascia below the inguinal ligament and drain the gluteal area, anal area, vulvar and lower vaginal areas and the anterior abdominal wall below the umbilicus; (b) the *vertical* chain which are grouped around the long saphenous vein just below the fossa ovalis and drain superficial vessels from the lower limb. Both of these lymph nodes empty into the deep inguinal glands.
2. *The Deep Inguinal Lymph Nodes.* Again there are two groups: (a) a small group situated in the *inguinal* canal medial to the round ligament which drain towards the following group: (b) the major group located within the *femoral* canal which receives lymph supply from the deep lymphatics of the limb including the popliteal chain and receives lymphatics from all of the previously mentioned nodes. The uppermost lymph node in this group is constant and a portion of it may lie within the abdominal cavity. This gland is the gland of *Cloquet* or *Rosenmuller.*
3. *The Presymphysial Nodes.* These lymph nodes are located in the fat in the lower aspect of the mons veneris and are occasionally palpable. These may drain directly to Cloquet's node.
4. *The External Iliac Lymph Nodes.* There are three groups: (a) the *lateral* group which lies on the lateral aspect of the external iliac artery; (b) the *anterior* group which is found in the grove between the external iliac artery and vein; (c) the *medial* group which is found inferomedial to the external iliac vein. It is necessary to lift the vein to gain access to these nodes. Metastases occur mostly by embolic spread and rarely are nodes bypassed. Direct permeation with growth in continuity is rare.

The lymphatic drainage of the vulva is limited by the embryological boundaries of the labial-crural folds, the hymen, the lower third of the urethra and the anal canal. If tumour has not crossed these boundaries, then the *inguinal glands will be affected before the iliacs.*

BLOOD SUPPLY

The blood supply of the vulva is from the internal pudendal artery and via the femoral artery through its branches the superficial epigastric, the superficial and deep external pudendals, the superficial circumflex iliacs and muscular branches. Venous drainage is via the internal pudendal vein and branches of the long saphenous vein.

STAGING OF VULVAR CARCINOMA

TNM System (1967)

— this only applies to carcinomas

PRIMARY TUMOUR

T 1 S — preinvasive, carcinoma-in-situ.

T o — no evidence of primary tumour.

T 1 — single tumour less than 2 cm. in size.

T 2 — a 2 cm. to 5 cm. single tumour.

T 3 — a single tumour greater than 5 cm. in size or any sized tumour with extension to the vagina of not more than 2 cm. in length or to the anal canal without involvement of the mucosa or with extension to the urethra.

T 3 (m)—multiple tumours covering an area of not more than 10 cm. in diameter.

T 4 — a single tumour of any size with extension to the vagina more than 2 cm. in length or to the anal canal with involvement of the mucosa or to the rectovaginal septum or to neighbouring structures.

T4(m)—multiple tumours covering an area of more than 10 cm. in diameter.

REGIONAL LYMPH NODES

N o — no palpable nodes
N 1 — mobile homolateral nodes
N 1 a — nodes considered not to contain growth
N 1 b — nodes considered to contain growth
N 2 — mobile contralateral or bilateral nodes
N 2 a — nodes considered not to contain growth
N 2 b — nodes considered to contain growth
N 3 — fixed nodes

DISTANT METASTASES

M o — no metastases
M 1 — metastases present

McKELVEY'S CLASSIFICATION

(Many authors have reported figures using this classification)

Stage I — lesions less than 10 cm. square in area (approximately 3 cm. diameter) may not involve urethra, vagina, or anus (15.2% positive nodes, 77.3% cure with vulvectomy).

Stage II — greater than 10 cm. square in area not involving urethra, vagina or anus (34.2% positive nodes, 48.4% five year survival).

Stage III — tumours of any size and those involving the urethra, vagina, or anus (55% positive nodes, 23.8% five year survival).

Stage IV — Distant metastases present (No five year survival)

(Results — McKeown)

HUBER'S CLASSIFICATION

Stage I — tumours less than 2 cm. in size.

Stage II — localized tumours larger than 2 cm. in size.

Stage III — positive inguinal nodes.

Stage IV — involvement of adjacent organs, urethra, vagina, perineum, anus, fixed or ulcerated inguinal nodes or metastases.

CLASSIFICATION OF INVASIVE TUMOURS OF THE VULVA

Primary epidermoid carcinoma of the vulva accounts for 85-90% of vulvar malignancies. The classification of all tumours is listed below, although this paper will deal mainly with the epidermoid variety.

A. Primary to the Vulva

1. Epidermoid (Squamous) Carcinoma
   (a) vulva
   (b) urethra
   (c) Bartholin's gland
2. Basal Cell Carcinoma
3. Adenocarcinoma (Bartholin's gland)
4. Malignant Melanoma
5. Other — fibrosarcoma, sarcoma, myosarcoma, liposarcoma, malignant hidradenomas, etc.

B. Secondary

Metastatic from rectum, colon, vagina, cervix, uterus and choriocarcinoma.

EPIDERMOID CARCINOMA OF THE VULVA

SITE — Huber found 47.7% localized to the labia majora and 17.1% to the labia minora with 3.2% involving both structures. The tumours were localized in 21.3% to the clitoris, 5.4% to the posterior commissure and 5.4% not determinable. Taussig reported the anterior half of the labia to be the most common site. Grossly the initial lesion may be inconspicuous, nodular or ulcerative and may be confused with a variety of other vulvar lesions to be discussed later. As it enlarges it either becomes exophytic or endophytic in type. Microscopically the common variety is a highly differentiated spinal cell type with the cells being large and polyhedral with a tendency to the formation of epithelial pearls. The margin of a vulvar carcinomatous ulcer may appear quite normal microscopically, except for extensive chronic inflammatory reaction. Deepest invasion may be seen at the base of the ulcer.

BASAL CELL CARCINOMA

(BASAL CELL EPITHELIOMA)

This is also classified under the intraepithelial carcinoma section of this paper as these tumours only very rarely metastasize. The incidence of basal cell epithelioma in this site has been reported as 2-4% of all neoplasms. It arises most often in postmenopausal women at an average age of 63 years and the labia majora are the most common site. Lever classifies it as a tumour of epidermal appendage origin and feels that rather being carcinomata they are naevoid tumours (hemartomata) derived from incompletely differentiated pluripotential cells. Others feel it arises from embryonal basal origin. Grossly they are slowly growing nodules with central ulcerations with rolled borders with the term rodent ulcer frequently applied. Microscopically, the cells appear as single or multiple growths arising from the basal layer of the epidermis or from a hair shaft or glandular apparatus. There is no relationship to leukoplakia. 5% of these tumours will be *mixed basal squamous* in type and when present the prognosis and treat-

ment is the same as for squamous cell carcinoma. Because these tumours have a propencity to recur locally, some authors believe they should be radically excised with a wide margin of surrounding normal skin. Bean and Becker in reviewing the literature found a 98% cure rate with biopsy, electrocautery and curettage. Collins favours a complete vulvectomy because of the possibility of multicentric origin. Palladino reports that an adequately documented properly treated case of basal cell carcinoma of the vulva producing death has not been reported. In his series he found no lymph node metastases. In his series local electrocautery or wide local excision sufficed for cure. Radiation therapy, liquid nitrogen and carbon dioxide snow are rarely used today.

BARTHOLIN'S GLAND CARCINOMA

Carcinoma of the Bartholin's gland accounts for 4-5% of vulvar cancers. Dodson, *et al* reported that *epidermoid* carcinomas accounted for 46%, *adenocarcinomas* for 48% and the remainder being transitional cell in type. The Bartholin's duct is lined by squamous epithelium which becomes transitional near the glands and terminal ducts. Squamous metaplasia secondary to inflammation probably accounts for the high incidence of epidermoid carcinomas. 9% of patients will have a previous history of an inflammatory vulvar lesion and an average of 8 months will elapse before a physician is consulted after the onset of symptoms. Criteria which must be present before making this diagnosis are: 1) the tumour has a typical vulvar-like location deep within the labium; 2) a connection with the gland duct is established; 3) the presence of glandular epithelial elements; and 4) the overlying skin is intact. These tumours are very aggressive and metastases to the inguinal glands occurs early. Also because of the deep location within the vulva, metastases may occur to the hypogastric and obturator nodes early. The adenocarcinoma variety seems to be the most virulent. The prognosis is extremely guarded with *five year survivals reported from* 10-30%. Treatment for cure is by radical vulvectomy and lymphadenectomy or pelvic exenteration. Radiotherapy and chemotherapy with methotrexate, chlorambucil and actinomycin D have not been beneficial. Earlier detection should be through careful evaluation of the patient with Bartholin's gland lesions over age 40, the more frequent use of biopsy for these lesions, the use of cytological evaluation at the time of marsupialization, and excision rather than marsupialization of lesions in patients over age 40.

MALIGNANT MELANOMAS

Pigmented naevi are the starting point for 40% of malignant melanomas. The grossly flat naevus which is non-hair bearing is usually of the *junctional* type and is most likely to become malignant. The compound naevus exhibits some junctional activity but has less malignant potential and the intradermal naevus generally has none. All nacvi, except those that are hair-bearing, should be removed with at least 0.5 to 1 cm. of surrounding skin from the vulva and examined microscopically. Malignant melanoma accounts for 2-3% of vulvar malignancies and occurs at an average age of 54 years. The majority of these tumours arise from the labia minora (88%) in contrast to epidermoid carcinomas which are usually located more laterally in the labia majora. The occasional tumour is amelanotic. The overall five year survival for these patients is approximately 30% if radical surgery is initiated. Survival is influenced by the early involvement of inguinal nodes but if these are not involved, survival may be as high as 44% for five years. The prognosis is terrible if recurrence occurs after radical resection. These tumours do not respond well, in general, to radiotherapy.

SARCOMA AND FIBROSARCOMA

Lesions arising from the clitoris may have a sarcoma-like pattern, the cells being of immature embryonic type. These lesions are extremely rare and prognosis is very poor.

INTRAEPITHELIAL CARCINOMA

(CARCINOMA-IN-SITU)

Classification

1. Intraepithelial carcinoma simplex
2. Bowen's Disease
3. Paget's Disease
4. Basal cell epithelioma

This classification is used by Collins. These are all grouped together as they all basically represent pre-invasive cancer.

INTRAEPITHELIAL CARCINOMA SIMPLEX

(SQUAMOUS CELL CARCINOMA-IN-SITU)

This is the most common lesion of this group. The average age of detection is *49 years* compared to 58 years for invasive lesions in Collins' series. The presenting symptom is usually pruritis although they may present with bleeding, a nodule or an ulcer. No characistic lesion is seen and some are described as ulcers, leukoplakia or diffuse hypertrophic lesions. It is not known what percentage of these lesions will go on to invasive carcinoma but Green estimates it at 10-20%. Carcinoma-in-situ is often found in association with invasive carcinoma often being multicentric or lying at the periphery of the invasive lesion. Hay found 54% of patients with invasive carcinoma also had carcinoma-in-situ. He also found in studying postgranulomatous carcinoma that in cases where carcinoma-in-situ was found in conjunction with epidermoid carcinoma that inguinal node metastases were far less common. He therefore postulated that postgranulomatous epidermoid carcinoma is of two types. One developing slowly through an in-situ phase and metastasizing late and the other growing and mestastasizing rapidly with no evidence of an in-situ phase.

Microscopically, the pattern differs from that of Bowen's disease in that the features of malignancy are more subtle. The bizarre nuclear forms and malignant multinucleated giant cells seen in Bowen's disease are lacking. There is variation in nuclear size and shape with hyperchromatism and hyperkeratosis. These lesions may be detected before biopsy using the Collins' test and treatment should be by extensive vulvectomy because of their multicentric nature and because of the association of coincidental invasive carcinoma. Recurrence of these lesions is as high as 25% in which excision is not extensive and was 7.3% in Collins' series with *extensive vulvectomy*. With extensive removal of skin, closure may be obtained by skin grafting and the take is usually excellent in the vulvar area (over 85%). Lifelong followup is necessary for these patients because of both the tendency for recurrence and also because of the 10-15% chance of their developing another primary malignancy in the genital tract.

BOWEN'S DISEASE

Bowen first described the disease bearing his name in 1912. Unfortunately, a number of gross and microscopic lesions have been erroneously termed Bowen's disease despite the fact that the gross and microscopic findings of the lesion are quite specific. The term should be confined to an intraepithelial carcinoma which grossly is a single lesion characterized by a dull red patch of sharp but irregular outline and which on microscopic examination characteristic bizarre nuclear forms and malignant multi-nucleated giant cells are seen. Corps ronds, nuclear clumps and individual cell keratinization are evidence of the atypical type of maturation characteristic of Bowen's disease. The epithelium will also demonstrate hyperkeratosis, parakeratosis and acanthosis. Moderate numbers of lymphocytes and plasma cells may be seen in the corium and within papillae. This lesion has a very low invasive potential and the likelihood of associated invasive carcinoma is low. A simple vulvectomy probably suffices for treatment. *Erythroplasia of Queyrat* — this term is used to describe an intraepithelial squamous cell carcinoma of mucous membrane, analogous to Bowen's disease of the skin.

PAGET'S DISEASE

Extramammary Paget's Disease is a slowly progressive intraepithelial carcinoma. Controversy exists as to the exact nature of this lesion and as to its origin. Some investigators question whether it exists on the vulva at all. Characteristically it appears as an erythematous eczematoid lesion; however, it may be whitish grey in appearance. It may also present as an ulcer. Microscopically the epithelium shows atypical hyperplasia with hyperkeratosis and parakeratosis. Large pale vacuolated cells with large hyperchromatic nuclei and occasional mitoses which are prominent in the basal layer but may be seen anywhere in the epidermis are called Paget cells. Huber found an underlying apocrine gland tumour in 25% of cases. Other investigators have found a high incidence of other genital primary malignant neoplasm in association. Woodruff believes that Paget's disease of the vulva represents an intraepithelial growth and that the cells arise from cells of the epidermis involved in the formation of apocrine glands. The lesion, when it occurs, remains in-situ for a long period of time but following local excision recurrence may occur. Most investigators now treat this lesion by simple vulvectomy.

BASAL CELL EPITHELIOMA

This has already been discussed under invasive lesions.

In general all of the above lesions may be grouped together and the histologic characteristics or description play no role in the approach to treatment. The only matter of practical importance is whether the lesion is invasive or not.

PRECURSORS TO MALIGNANCY

Many investigators have reported carcinoma of the vulva to be associated with such conditions as venereal disease, granulomatous disease, leukoplakia, and vulvar dystrophies. Much confusion exists in this area because of imprecisely used nomenclature. Therefore, statistics are difficult to evaluate.

LEUKOPLAKIA

Leukoplakia is really a *clinical term* which denotes a grossly visible white, flat patch. Microscopically, this may represent a carcinoma, a carcinoma-in-situ, a hyperplastic lesion or just hyperkeratinization. Leukoplakia was once felt to be of onerous significance in the vulva and the prevalence of leukoplakia associated with carcinoma varies from 5-80% in the literature. Green found leukoplakia in 60-75% of his cases of carcinoma and felt that 10 to 20% of cases of leukoplakia go on to develop carcinoma. Cavanagh found leukoplakia in only 12% of his invasive cases. Way reported 50% of his invasive cases had pre-existing leukoplakia, kraurosis vulvae or lichen sclerosus et atrophicus. These figures are meaningless, however, and biopsy and microscopic examination must be done before prognosticating.

GRANULOMATOUS DISEASE

Lymphogranuloma venereum, granuloma inguinale, chancroid and secondary lesions of syphilis (condylomata lata) and tertiary syphilitic ulcerating gummata and chronic tuberculous lesions are all associated with an entity described as *postgranulomatous carcinoma of the vulva*. Collins found 29% of his preinvasive and invasive cases were associated with pre-existing venereal disease. Cavanagh reported 12% of his cases had had syphilis and 2% granulomatous disease. Hay in his series of postgranulomatous epidermoid carcinoma reported a mean age of 36.6 years with 70% of his patients under 40 years of age. 54% of these patients had coexistent carcinoma-in-situ with invasive carcinoma. 50% had positive serology for syphilis. He noted marked delay in detecting these carcinomas in that it was difficult to distinguish cancer from necrotic granu-

lomatous disease. He also noted that postgranulomatous carcinoma tends to occur more frequently posteriorly and that metastases may occur via the lymphatics of the rectum leaving Cloquet's nodes free of tumour. He felt that his patients fell into two types. One, which progressed slowly through an in-situ phase with late metastases and the other growing and metastasizing rapidly without evidence of in-situ phase. Carcinoma of the vulva has also been reported to be rare in the negro population unless granulomaotus disease is present.

THE VULVAR DYSTROPHIES

As has been previously mentioned there is much confusion in the nomenclature of these vulvar lesions. *Leukoplakia* as previously mentioned, is simply a clinical descriptive term meaning a white patch. *Kraurosis vulvae* is a term which means shrinkage and is now used by most authors as a descriptive term indicating thickening of the skin due to irritation. Woodruff uses the term *hyperplastic vulvitis* to describe the lesions in this group and microscopically divides them into three grades. Grade I lesions exhibit no atypia with Grade III lesions representing carcinoma-in-situ. Gardner and Kaufman proposed the following classification.

A. *The Hyperplastic Dystrophies*

1. Benign epithelial hyperplasia
   (a) lichen simplex chronicus (neurodermatitis)
   (b) unclassified
2. Atypical epithelial hyperplasia (dysplasia)

B. *Atropic Dystrophy* — lichen sclerosus et atrophicus

C. *Mixed Dystrophy* — lichen sclerosus et atrophicus with foci of epithelial hyperplasia.

1. Without atypia
2. With atypia

Most of the hyperplastic lesions previously called leukoplakia represent examples of *lichen simplex chronicus or neurodermatitis*. These have low malignant potential. Those cases classified as *atypical epithelial hyperplasia* are of far more significance in regard malignant potential and again grossly would have been classified as leukoplakia in the past. *Lichen sclerosus et atrophicus* may occur on other parts of the body and in young individuals. Initially the lesions appear as low irregularly outlined flat-top white maculopapules which later coalesce. Comedo-like plugs or depressions are frequently seen and later in the development of the disease the typical kraurosis vulvae appearance is seen with skin which is described as like cigarette paper or parchment-like. It frequently will involve skin in the anal region and may produce oedema of the clitoral foreskin causing phimosis. There is little relationship between lichen sclerosus et atrophicus and the development of carcinoma of the vulva unless there is superimposed epithelial hyperplasia. Thus, as can be seen the malignant potential of these lesions is more closely related to microscopic cellular atypia than to their different types or etiologies. Woodfuff estimated that approximately 25% of hypertrophic lesions of the vulva became malignant. Jeffcoate felt that the risk of development of carcinoma in the presence of a chronic vulvar dystrophy was less than 5% and that it was only a serious risk if the initial biopsy revealed atypical hyperplasia. The dystrophies themselves are special reactions of the vulvar skin influenced by its environment of warmth and moisture. Transplanted skin from other areas will undergo the same changes in the vulvar area, whereas chronic vulvar lesions will clear when transplanted to other sites. Their cause seems to be related to chronic vulvovaginal infection such as candidiasis, to neurodermatitis and possibly diabetes. There seems to be little relationship to estrogen deficiency.

Microscopically, the findings will be usually reported as follows: for *lichen simplex chronicus*, there will be seen hyperkeratosis (a variable increase in thickness of the horny layer) and acanthosis (an irregular thickening of the malpighian layer with a thickening of the epithelium as well as lengthening and distortion of the rete pegs), parakeratosis (incomplete keratinization of the stratum corneum with retention of nuclei and cell structure through to the horny layer) may also be present. Inflammatory reaction is usually present in the dermis. In *lichen sclerosus et atrophicus* early lesions will show hyperkeratosis, oedema of the epidermis, and a clear pink-staining band of collagenous tissue beneath the epidermis. Advanced lesions will show epithelial atrophy with flattening of the rete pegs and cytoplasmic vacuolation of the basal layer of cells and follicular plugging. Beneath the epidermis will again be a homogeneous collagenous tissue with a dull pink acellular appearance. A narrow band of chronic inflammatory cells lies below this. When *atypical changes* are superimposed on these lesions, they are usually first detected in the deeper layers of the epidermis and the rete pegs. The size and shape of nuclei vary, many are hyperchromatic, mitotic figures may be present and there may be a pleomorphism and loss of cellular polarity.

Treatment of these lesions only follows multiple punch biopsies to determine correct diagnosis. Identification of lesions is by the Collins test. Vulvectomy is only performed for severe atypical changes or lesions which do not respond to conservative management, as the incidence of recurrence of the dystrophies is extremely high following vulvectomy. Constant followup is essential. Conservative management includes simple hygenic measures, cotton panties, treatment of emotional factors, wet dressings with agents such as Burrow's solution for eczematoid reactions, steroid creams and combination steroids and antifungicides such as locacorten vioform. The atrophic lesions respond well to topical 2% testosterone proprionate in white petrolatum base applied 10 mg t.i.d. Local anaesthetic agents and estrogens are not useful. X-Ray therapy should not be used. The Mehring undercutting operation for relief of pruritis has not been

widely accepted and improvement of pruritis is short-lived.

VULVAR PAPILLOMA

This is mentioned only for completeness, since the true squamous papilloma is extremely rare. Reportedly 2-3% of papillomata may undergo malignant change. What are commonly called papillomata are in fact *acrochordons* which are polypoid fibroepithelial lesions or skin tags. These do not become malignant.

DIFFERENTIAL DIAGNOSIS OF VULVAR CARCINOMA

This may be extremely difficult because of the variety of lesions occurring in the vulvar area. The following is a selected classification.

Group 1 — *The Dermatoses*
- (a) psoriasis
- (b) seborrhoeic dermatitis
- (c) lichen planus
- (d) pseudoacanthosis nigricans
- (e) contact dermatitis

Group 2 — *Venereal Diseases*
- (a) chancroid
- (b) granuloma inguinale
- (c) lymphogranuloma of venereum
- (d) syphilis
  - i primary chancre
  - ii gumma
  - iii condylomata lata

Group 3 — *Ulcerative Lesions*
- (a) the simple acute ulcer (Lipschutz) (bacillus crassus)
- (b) tuberculous ulcer
- (c) Herpes genitalis (Herpes Type II)

Group 4 — *The Atrophies*
- (a) vulvar atrophy
- (b) atrophic vulvovaginitis (senile vaginitis)
- (c) post radiation vulvovaginitis

Group 5 — *The Mycoses*
- (a) candidiasis
- (b) dermatophytoses

Group 6 — *Urethral Lesions*
- (a) urethral caruncle
- (b) urethral polyps
- (c) urethral prolapse

Group 7 — *Pigmentary Lesions*
- (a) congenital states — leukoderma or vitiligo
- (b) depigmentations — radiation reactions, chronic infection or trauma, idiopathic.

Group 8 — *The Benign Vulvar Cysts and Solid Tumors*

Group 9 — *Viral Disease*

Condylomata acuminata — these are believed to be caused by the same virus that causes the common wart, verruca vulgaris. Most authors have found no association between these lesions and vulvar carcinoma, although Edsmyr had five verified cases which underwent malignant transformation and Gardner and Kaufman reported four more cases. Since most condylomata acuminata are treated with podophyllin, a casual relationship may be present.

AGE

Carcinoma of the vulva was previously believed to be a disease of advanced age, although in series where the incidence of *postgranulomatous carcinoma* is high the average age may be as low as 38, or 20 *years younger than non-granulomatous* cases.

Edsmyr in the Radiumhemmet Series reported a mean age of 64 years with age peak falling between 60 and 70. However, Cavanagh reported 38% of his patients were under age 50 and Hay in his post-granulomatous series reported a mean age of 36.6 years with 70% of his patients below the age of 40.

Other associated factors have included the reported high incidence of nulliparous patients and the high incidence of hypertension, diabetes, obesity and arteriosclerosis which probably only reflects the age of the patients. Also associated is a high incidence of carcinoma of the cervix. Merrill reported 34% of his patients with vulvar carcinoma had at some time cervical cancer. Rutledge and Franklin reported a 15% incidence of *carcinoma of the cervix* in their series. These occurred before, during or after treatment of carcinoma of vulva.

SYMPTOMS

By far the commonest symptom was that of *pruritis* or soreness in the vulvar area. The finding of a tumour, ulcer or bleeding were less common.

DELAY IN DIAGNOSIS

A marked delay before patients seek medical attention is noted in most series. Novak reported an average delay of one and-a-half to two years before the onset of medical attention in his series and Rutledge reported that 60% of his patients were aware of a vulvar mass or sore for an average period of ten months prior to treatment. Hawson reported that in one-third of his cases physicians were responsible for the delay and Rutledge reported a physician delay of three months in 30% of his patients. 25% of his series had been under medical management without a biopsy being taken.

DIAGNOSIS

As previously mentioned, biopsy, multiple biopsies, or excisional biopsy of any suspicious area should be carried out, particularly before conservative treatment is

undertaken. With a large lesion, biopsy at one edge of the lesion is best. Simple vaginal pool cytology will give a 35-40% positive rate with carcinoma of the vulva. Simple Pap Smears of the lesion will give up to 80% positive results for malignant cells. Since the premalignant lesions are often multicentric, a useful screening procedure is the one reported by Richart and later by Collins. A 1% aqueous toluidine blue solution is applied to the vulva and allowed to dry for two minutes and then destained with 1% acetic acid. The vulva should not be cleansed before the test. Lesions such as atypical epithelial hyperplasia, carcinoma-in-situ and vulvar carcinoma will take up the blue dye. Collins reported 17% false positives for preinvasive and invasive lesions and no false negatives, using this tool. Absorption of the toluidine blue is variable in areas of leukoplakia because of the thickened keratin surface. False positive results are usually obtained in superficial benign ulcerated areas. Broen utilized this test in conjunction with colposcopy prior to directed biopsies. With the colposcope and the dye he found it easy to identify areas of colposcopic leukoplakia, mosaicism and punctation. Patients being followed, following treatment for vulvar dystrophy or carcinoma-in-situ, are excellent candidates for this technique. Lugol's solution may be used for similar purposes on the vaginal mucosa.

ASSESSMENT OF LYMPH NODES

Whether lymph node spread has occurred or not is an essential prognostic factor in vulvar carcinoma. Clinical examination of the superficial inguinal nodes therefore is essential but difficult. Novak reported that one-third of palpable nodes would histologically show no malignant cells and be the result of chronic infection while in one-third of cases occult spread to the nodes occurs when they are not palpable. Rutledge found a fairly constant 25% *incidence of nodal metastases that were clinically occult*. Way reported that with lesions less than 1.5 cm. in diameter there was a 15.3% positive node incidence. With lesions between 1.5 and 3 cms. in diameter the incidence rose to 45% positive nodes. Rutledge reported that patients with tumours 2 cms. or less in diameter had a 15% incidence of positive nodes. Tumours between 2 cms. and 8 cms. in size had a 34% nodal involvement while tumours greater than 8 cms. in size had a 50% incidence of node involvement. The incidence of nodal involvement is also related to depth of stromal invasion of the primary tumour in that Rutledge reported no nodal metastases when the stroma had not been invaded more than 5 mms. He also found that anaplastic tumours had a higher incidence of nodal involvement and among his Grade I tumours that were well differentiated, no node metastases were noted if the primary was less than 2 cm. in diameter. In carcinomas that were limited to the vulva he had an overall incidence of 30% positive nodes, whereas if the tumour involved the anus, urethra or vagina, the incidence increased to 50%. Both Rutledge and Way reported no deaths caused by cancer in their series of patients that have negative lymph glands following radical vulvectomy and bilateral lymphadenectomy. Pelvic lymph nodes are generally found to be positive in about 16% of cases that have either extensive disease or positive inguinal nodes. The absolute survival rate after positive pelvic lymphadenopathy was given as 18% by Way. It is important to note that the gland of Cloquet is of great prognostic importance. Rutledge reported that no patients had pelvic wall metastases when Cloquet's node and the inguinal nodes were not affected. A review of the literature reveals that *the chances of pelvic nodes being positive with a negative Cloquet's node is less than* 2%.

Lymphography may not be used in the clinical staging of the disease, but some investigators have suggested that it might have a place in prognostication and operative selection. Comas reported an overall accuracy of lymphography in predicting the presence or absence of lymphatic metastases from vulvar malignancies to be 85%. This was consistent with an accuracy of 85% reported previously by Averette. Jackson, however, felt that it was of limited value and noted that the obturator and hypogastric nodes were often not well seen and that he could only visualize the inguinal nodes in 50% of cases normally. Certainly great caution must be used in evaluation of inguinal lymph nodes as inflammatory reactions here frequently alter nodal architecture. With the operative techniques presently used, the extent of lymphadenectomy is dependent upon quick section results of Cloquet's nodes and thus lymphography is of limited value.

TREATMENT

SURGICAL MANAGEMENT

Before 1940, absolute five year survival rates for carcinoma of the vulva ranged from 10-30%. Since 1940 absolute five year survivals of 83.3% have been reported. This marked increase in survival rate between the two time periods is probably due to the increasing use of radical operation. In 1912, Basset described the operation that now bears his name. This included a radical excision of the vulva with the dissection of the superficial and deep inguinal nodes. Taussig popularized Basset's operation with a large series of cases. Way in England and Collins in the United States, are proponents of the en bloc radical vulvectomy and inguinal lymph node dissection with selected retroperitoneal node dissection.

Rutledge carries out a similar procedure and occasionally excises the urogenital diaphragm and dissects the ischio-rectal fossa and paravaginal spaces as well as a partial amputation of the urethra if necessary. He also transplants the sartorius muscle over the femoral canal which decreases the incidence of postoperative haemorrhage. If the external iliac, hypogastric and obturator nodes are to be dissected, the retroperitoneal spaces are reached through an incision that is above and parallel to the inguinal ligament. Rarely does the dissection extend

above the level of the common iliac artery bifurcation. Most of these operators use Cloquet's node as the indicator on quick section as to whether or not retroperitoneal node dissection is to take place. Daily *et al* are proponents of total or posterior exenterations for advanced carcinoma of the vulva. Brunschwig utilizes pelvic exenteration combined with resection of segments of bony pelvis for advanced cases. For radical vulvectomy and lymphadenectomy with modern medical techniques, the *operability rate is generally* 80-90%. The one-stage procedure is generally preferred today although patients who can stand only limited anaesthetic time may be candidates for a two-stage procedure. Hester reported operating times of two and-a-half to four and-a-half hours for the one-stage procedure with average blood loss of 2000 ccs. His average hospital stay was 37 days, with an operative mortality of 4-5%. Goplerud reported an average operating time of 186 minutes for the one-stage operation and if the two-stage operation was performed with an interval of two to four weeks between, 98 minutes was taken on the average for vulvectomy and 161 minutes on the average for nodal dissection. His average hospital stay was 51 days. Closure of the wound is by primary intention in most series although some authors use split skin grafting with the thigh as donor site or allow the wound to granulate in, if primary closure is not possible. The use of suction drains and pressure dressings reduces serum and lymph collection and skin necrosis. Rutledge uses low molecular weight dextran 500 ccs. intravenously twice daily for the first five days postoperatively to dilate the small blood vessels and improve circulation in the skin flaps. Cavanagh utilizes honey as a bactericidal agent to decrease wound infection and to carry out chemical debridement.

INDICATIONS FOR RETROPERITONEAL LYMPH NODE DISSECTION

1. Involvement of Cloquet's node at quick section.
2. External iliac nodes clinically involved to palpation beneath inguinal ligament at time of operation.
3. Spread to vagina, urethra, bladder, anal canal or rectum.

INDICATIONS TO DECLINE OPERATION

Metastases to bone, lung, or liver.

CARCINOMA OF THE VULVA IN PREGNANCY

In the first and early second trimesters, therapeutic abortion should be carried out followed by a one-stage radical vulvectomy and lymphadenectomy. In the late second trimester and early third trimester, vulvectomy may be carried out with node dissection following delivery. If the patient is close to term, vaginal delivery should be accomplished and a radical vulvectomy and node dissection may be carried out seven days postpartum.

COMPLICATIONS OF SURGERY

1. Necrosis and infection of skin flaps. This is a problem in 40-100% of reported series depending on the extent of dissection. Split skin grafts may be utilized to cover areas of wound breakdown once granulation has occurred, usually ten to twenty days later.
2. Serum and lymph collection. The use of pressure dressings and haemovacs decreased this.
3. Postoperative haemorrhage and retroperitoneal haematoma. Infection and necrosis of the denuded femoral vessels was a cause of serious postoperative morbidity in the past, but this has been eliminated with transposition of the sartorius muscle, over these vessels.
4. Lymphoedema. Transient lymphoedema is common, however, 30-40% of cases may have residual lymphoedema.
5. Hernia. Inguinal and femoral hernias may occur if both canals are not specifically closed at the completion of dissectoin.
6. Mortality. This ranges at around 5-6% in most series, although Way reported mortality of 19% in one series. Pulmonary emboli are the commonest cause of death.

ELECTROCOAGULATION

This technique has seen limited use on this continent although it has been extensively used in Europe particularly in Stockholm. The technique of electrocoagulation was perfected by Berven who reported on 286 cases in 1949 and later by Edsmyr. The method is applicable only to the vulvar area and consists of coagulating the tissues with two bipolar electrodes. The tumour tissue between the electrodes is coagulated to the consistency of boiled flesh which takes one-half to one minute in each area. The entire procedure rarely takes longer than 15 minutes. Postoperatively the patient is usually free from pain and the coagulated portion usually sloughs after two to three weeks leaving a healthy wound surface. Epithelialization usually begins during the fourth to fifth post-operative week and the patient is usually discharged home then. The scar produced is usually soft and flush with the skin surface. Radiotherapy is usually administered to the inguinal regions approximately two weeks following coagulation, and therapy is usually given over a two-week period. Postoperative mortality rates with this method range from 3-7% and complications include prolapses of urethra, vagina, uterus, cystocoele, rectocoele and vaginal stenosis. External radiotherapy to the inguinal regions was accomplished with a Teleradium Unit delivering 3600 rads to each of two fields in each groin. The total duration of radiation was usually 10-20 days. Edsmyr believed this dosage to produce destruction of cancer cells in subclinical metastases or in small palpable metastases. Patients with palpable metastases received 2700 to 3600 rads per field over a course of

eight to ten days preoperatively before inguinal dissection.

RADIOTHERAPY ALONE

Primary radiation therapy to the vulva is rarely practiced. The vulvar area contains a large amount of areolar tissue and besides the moisture and friction which is always present in this area, secondary infection is almost always present with carcinoma. An atrophic, ischaemic and infected tissue bed does not tolerate radiation well. Even if the primary tumour itself is adequately treated by radiation therapy the precancerous surrounding tissue may still regenerate to form recurrences. There is also a high incidence of late necrosis and ulceration and these are usually very slow healing and intensely painful.

Methods used have included *implantation of radium*, delivering 4500 to 6000 rads over one week. *Radium moulage* using dental plastic or adhesive plaster has been used to deliver 5000 to 7000 rads to the vulvar area. Conventional *X-ray* treatment using doses of 5000 to 10,000 rads has also been used. All of these methods are fraught with late complications. *Electron irradiation* with voltages between 6 and 15 MeV has been used in Germany since 1950. Frischbier and Thomsen reported on the use of high energy electrons to both the vulvar area and to the nodes. To the vaginal field they applied a dose of 300 rads daily for a total dose of 4500 to 5000 rads. Their field limits were 2-3 cms. larger than palpable tumour. They also irradiated the inguinal area with 300 rads daily to each field for a total of 4500 to 5400 rads. They found the irradiation field re-epithelialized four to six weeks after therapy. Their complications included induration, atrophy, and scleroderma of the labia. 24% of their cases had flat oozing bleeding ulcers and 8% had extreme tissue necrosis and persistent ulceration.

RESULTS

As previously mentioned absolute five year survival rates have improved greatly since the advent of *radical vulvectomy and extensive node dissection.* The highest absolute five year survival rate is 83.3%. The presence or absence of inguinal nodes is the most important factor in those patients receiving radical operation. Way reports a five year survival of 70% in cases without lymph node involvement, while the cure rate decreases to 47% with lymph node metastases. With metastases to the deep pelvic lymph nodes, he recorded a survival of 18%, which although a discouraging figure, justifies continued efforts for cure of the disease by deep node dissection, if the glands of Cloquet are positive. Green reports a five year survival of 88% with negative nodes and 41% with positive nodes. If just the superficial inguinal nodes are involved unilaterally he has a five year survival rate of 85% and if there is bilateral involvement of the superficial nodes a five year survival of 60%. Collins relates the prognosis to both the size of the lesion and to lymph node involvement. With lesions less than 3 cms. in diameter and with negative nodes, his five year cure rate is 90%. If the lesion is greater than 3 cms. in size with positive lymph nodes the five year survival rate is 18%. For all cases with negative nodes, Collins' five year cure rate is 76% whereas with positive nodes the cure rate is 20%.

Rutledge reported an absolute survival rate of 55.7% at five years with a corrected five year survival of 70%. His five year survival with patients treated curatively was 83%. Because of the number of deaths with intercurrent disease he used three year followup rates to further assess his patients. Of patients with negative inguinal nodes he had 100% survival with no recurrence. Of patients with positive nodes, 42% survived free of disease. Of patients who were treated for a cure without inguinal lymphadenopathy only 83% were alive at three years, free of disease. This confirms the efficacy of inguinal lymphadenectomy for cure, but also suggests that a significant number of selected patients could be cured without inguinal lymphadenectomy. Rutledge also noted that only 6% of cases with lesions at 1 cm or less in diameter had nodal metastases and with lesions of 2 cms or less in diameter, 14% had metastases in the nodes. He therefore suggested conservative treatment for the high risk medical patient if the lesion is less than 2 cms in diameter, and if microscopic study shows only limited invasion. He noted that 90% of cases with recurrent disease were diagnosed within two years following operation. Green, however, found that lesions having a diameter of 1 cm or less had a 32% incidence of lymph node involvement and that amongst all histological Grade I lesions associated positive lymph nodes were present in 48%. He therefore feels that radical operation is necessary whenever possible. Goplerud reported that 75% of his recurrences were seen within two years and that only 24% of patients treated for recurrence were alive five years after their original operation.

McKelvey found no cures within his series, if the tumour involved the urethra, vagina or anus. Green also noted the unfavourable prognosis with these tumours. Franklin and Rutledge had a five year survival rate of 75% among 12 patients subjected to pelvic exenteration for lesions of this type and feel that this operation may find broader application.

Recurrences when they occur are usually noted in the vulvar area or within the skin surrounding the groin dissection. Rutledge reported that 20% of his patients with positive nodes following lymphadenectomy developed recurrences within the surounding skin. No patient with non-palpable occult metastases developed such a recurrence.

Overall, 93% of deaths due to recurrent disease will occur within three years following operation.

RESULTS WITH OTHER METHODS OF TREATMENT

With the *Radiumhemmet method* the relative five year survival rate (discounting deaths from intercurrent

(*Continued on page* 79)

Teenage Pregnancy

Dr. A. Pettle

INTRODUCTION

The pregnant teenager, a girl 16 years of age or younger, presents an important challenge to the obstetrician. The social and psychological factors which lead to the pregnancy result in a situation of increased risk to mother and child, especially if she is a member of a low socio-economic group. The problems are frequently magnified by failure to obtain prenatal care. Unfortunately, even when the unwed school girl registers in a regular hospital clinic, she may become lost among the mass of older multiparas. The absence of adequate care probably contributes to the increased rates of toxemia, anemia, prolonged labor, prematurity and perinatal mortality mentioned in the literature. In addition, the oftentimes impersonal treatment in outpatient clinics, in combination with a lack of support in her home environment, results in a young girl totally unprepared to face the trials of pregnancy, the demands of labor and delivery, and the responsibilities of being a mother.

The total impact of adolescent pregnancy is brought into sharp focus by considering the variety of factors responsible.

First, the sudden rise in teen-age population is the aftermath of the post World War II "baby boom". Half the population in 1969 was less than 25 years of age.

Secondly, the females are now reaching puberty at younger ages.

Thirdly, adolescent age-specific fertility is increasing, augmented both by earlier age of marriage than before and younger age at first pregnancy.

When combined with the fourth factor, the new sexual freedom, only the very naive can ignore the message of impending demands for greater services, including medical, for this special group with its particular needs. In 1960, *one out of every six new mothers was a teen-ager*. Of course the actual total number of teen pregnancies is unknown due to the component of pregnancies terminating in spontaneous, illegal or self-induced abortion.

Special mention must be given to *nutrition* of the adolescent who is pregnant.

Diets and dietary regimens commonly used in prenatal clinics are *not* suitable for adolescents. Frequently their diets are inappropriate simply because they are based on food that is too expensive for low-income families to purchase. Furthermore, they are likely to be restrictive in calories, and are not adapted to the eating habits of the adolescent. Since caloric restriction may be poorly tolerated during adolescence, it is recommended that no attempt be made to treat adolescent obesity by caloric restriction and that stringent limitations not be placed on weight gains by pregnant adolescents. Recent work shows no relation between toxemia and weight gain.

Because of the age group one must mention drugs and venereal disease as they affect the pregnant adolescent. Neuberg noted that there has been a marked increase in the use of stimulant, sedative and hallucinogenic drugs and that an increasing number of young girls are becoming physically or psychologically dependent on them. "Speed" and "Acid" are common words to most of these young girls; however interestingly enough, studies would indicate a definite attempt on the teenager's part to stop using drugs while they are pregnant. Work now being done on rats indicates that LSD injected in early pregnancy can lead to abortion, stillbirth, stunted growth and grossly abnormal fetuses. The literature is now beginning to fill with human evidence of the same tragic results. Unfortunately we are still comparatively ignorant about the possible ill effects of marijuana and research is needed.

While the total reported incidence of gonorrhea continues to rise at a progressively increased rate each year, the number of reported cases in the younger groups rises even more rapidly. Besides the increased sexual exposure of the adolescent, the decreased use of the condom has contributed to produce this menacing problem.

EMOTIONAL PROBLEMS

It has been recognized for years that the teen-age pregnancy in the unmarried among primitive cultures poses no particular emotional problem to the young mother. This is because her pregnancy is socially acceptable and does not cause a burden of guilt for her to bear. Regardless of the socio-economic status most pregnant adolescents are made aware of the moral stigma through the reproaches of their parents and the disapproval with which society views illigitimacy. Her peers may not disapprove but they look askance at the girls who are not "smart enough" to avoid pregnancy. The boy who impregnated her usually deserts her and her environment shuts her out. She subsequently often decides to "ignore" her situation.

The social isolation felt by some of the young primigravidas is one of the most disturbing features of their condition. They are usually excluded from the main focus of teen-age activity, the school. A few of their intimate girlfriends may drop by to see them or call on the phone in the beginning but this occurs with rapidly decreasing frequency the longer they are removed from their peer world. Parents usually warn their children to stay away from such a girl as though her dreaded state were directly contagious. This gets transmitted to the young girl and enhances her feeling of guilt and loneliness. As if these weren't enough burdens for a 12 to 15 year old girl there are also the usual fears of childbirth

which become compounded by youth. In a study of some of their fears it was found that many were afraid they wouldn't be able to stand the pains of the delivery. Most were afraid they wouldn't know when they were in labor. Many were afraid they wouldn't get to the hospital in time and they would have the baby on the street or in a taxicab. Most were afraid of the doctors and what they would do to them. Almost uniformly they dreaded the possibility of spinal anaesthesia because "it leaves you paralyzed." They were also very concerned with the after-effects of pregnancy on their bodies.

Anxiety in the presence of a strange physician is certainly not unexpected, but add to this the feeling created by the moment of truth when all wishful doubts about her true state of being pregnant are removed. Add to that the position of authority of the physician and the attitudes of angry censure for her condition which she expects from authority figures. Add to that her embarrassing experiences in the clinic thus far which have not inspired any confidence that she will be dealt with in a sensitive manner. Add to that the fear of the physician as one who creates pain by needles and examinations especially when he examines one's most sensitive areas, the anatomy of which may be so vaguely understood.

The clinic obstetrician so accustomed to dealing with adults, many of whom are multiparous, most of whom have had previous pelvic examinations, usually finds these frightened, uncooperative youngsters both pathetic and frustrating. Pressed by the large number of other patients to be seen, the obstetrician only occasionally is able to spend as much time with each 12 to 15 year old as he knows she really needs. The team approach to this problem is really the only answer.

The very obvious fact that for every unwed mother there is an unwed father has been virtually ignored by social agencies and the helping professions. We have failed to see him as a person with feelings, sensitivities and in need of help. We have wrongly assumed that he is not concerned with the girl he impregnates or her offspring.

I feel first we must recognize that unwed fathers are not all so called delinquents, irresponsibly taking advantage of innocent girls and that when they realize a new life has come into the world as a result of their actions, *some of them do want to act in a responsible way*.

If the choice of therapeutic abortion is not accepted by the two teen-agers, alternate solutions regarding the future of the child should be thoroughly explored by both the unwed father and unwed mother. These include the possibility of marriage, placing the child for adoption, or either mother or father assuming responsibility of caring for and rearing the child.

For the young mother, assuming her role as wife and mother may often, in time, come relatively easy. The teen-age father, on the other hand is too often woefully ill-prepared to assume the role of husband and father. Comprehensive services which would include educational help, vocational training, help in obtaining employment, economic assistance, help in finding adequate housing, marriage counseling, family life and sex education, are needed to meet this challenge.

These emerging young families have a multitude of built in problems. Many are, in fact, only children themselves thrust into the role of raising children. Their chances of succeeding in the role of parents are, indeed, minimal, if not impossible. They are being deprived of a normal adolescence. Many thousands of others have been thrust into teenage marriages for which they are ill-prepared and which are usually doomed to early failure.

Many of the important aspects of the management of the adolescent pregnancy have already been alluded to. However Huffman makes the following added suggestions. He feels that the girl's mother should have knowledge of the pregnancy and that the obstetrician should obtain permission from the teenager to talk with her mother. He also feels that these patients should be followed on a regular basis, outside the routine office hours. In a public clinic he emphasizes the importance of seeing the same physician on every visit.

The implications of sexual behaviour need to be carefully discussed, particularly with teen-age youngsters. This should include a firm position with them regarding their responsibilities. It should include a discussion of the difference between teen-age love and a more mature, genuine relationship between people ready to meet the problems and responsibilities of adulthood together. It should stress the responsibilities that go with parenthood and their basis in the need of every child for a stable and secure home.

SUMMARY

Today's teenagers appear to have much going for them in our youth-orientated society. However, in the realm of sexuality and reproduction, it is clear that many pitfalls and special problems still exist. While on one hand the establishment tries to reach across the generation gap to provide guidance and protection, its message often is ignored or misinterpreted by the developing youthful society which is insulated in the quest for emancipation. Health education for successful family life and responsible parenthood is way down on their list of priorities, but it is a must if medicine is expected to provide meaningful services designed to improve health and save lives. Medicine, too, needs education in order to narrow the gap and meet the teen-agers half way on some common ground for mutual benefit.

Grand Round Quiz — Questions

Answers on page 79

Dr. Alvin Pettle
Chief Resident
Obstetrics & Gynaecology
S.M.H.

1. *Match up each case history with correct diagnosis:*

   A. Rupture of Gangrenous Appendix
   B. Pelvic Inflammatory Disease with a Pyosalpinx
   C. Haemorrhage into a Twisted Ovarian Cyst
   D. Rupture of Appendix Epiploica
   E. Ruptured Ectopic Pregnancy

1. (i) This 22-year-old (GoPo) female presented to emergency complaining of vague abdominal pains. The pain had come on after a large meal the day before and began crampy but was now a steady ache across the lower abdomen. She was nauseated but denied vomiting. Her B.M.'s were loose that day.

Her L.M.P. was 7 days ago and was fairly normal. She had no vaginal discharge. Her T = 37.3°C. and her WBC = 10,000.

Pelvic examination revealed some right adnexal tendesness but her abdomen was soft and no rebound elicited.

The patient was observed and seemed to be doing quite well for the next 2 days. The evening of the second day she complained of increased RLQ pain but had no rebound tenderness. Bowel sounds were normal and rectal was extremely paintful for her, mainly right sided. Any movement seemed to exacerbate the pain. Her vital signs were stable. Her Hbg = 10.8 gm. Her WBC at this time was 11,000. She was taken to the O.R. that night.

1. (ii) This 22-year-old (GoPo) female presented to emergency with bilateral lower abdominal pains. She was anorexic but had no nausea or vomiting. Her L.M.P. was 7 days ago and was normal. Her abdomen was tender over both lower quadrants but the right side was more painful. Her WBC = 17,750, Hgb = 11.5 gms, but she was afebrile. A discharge not noted on cervical examination and swabs were taken.

The patient was admitted and observed for 12 hours. That evening she developed severe lower abdominal pain, vomited twice and now had a rigid abdomen. Her H.R. went from 80 to 110/min. Pelvic examination was difficult because of right adnexal tenderness. Her Hbg was 11.0 gm. She was taken to the O.R. immediately.

2. *The vaginal blood supply is abundant.*

(a) *Its upper third is supplied by the cervicovaginal branches of the uterine arteries.*

(b) *Its middle third by the inferior vesical arteries.*

(c) *Its lower third by the middle hemorrhoidal and internal pudendal arteries.*

1. (a) and (c) are true.
2. (a) and (b) are true.
3. Only (a) is true.
4. All are true.
5. None are true.

3. *A primipara presents in good labor with ruptured membranes at 35 weeks gestation. True labour ensues and she is now 3-4 cm. dilated and complaining of pain. The best analgesic or anaesthetic to give now would be a:*

1. Paracervical block with local infiltration for delivery.
2. Half dose of valium and demerol
3. Continuous epidural
4. Half dose of narcotic with narcotic antagonist.

4. *Concerning this premature infant, which of the following statements is not true.*

1. Prematurity is the number one cause of deaths in the newborn.
2. R.D.S. can now be predicted in these infants with amniocentesis.
3. Prematures tolerate trauma and anoxia poorly.
4. Forceps should be used always.
5. If the infant is small, an episiotomy is not always needed.

5. *Significant third trimester bleeding that is painless is most likely:*

1. Abruptio Placenta
2. Placenta Praevia
3. Cervical Polyp
4. Bloody "show"
5. Vasa Praevia

6. *Concerning Abruptio placenta, which of the following is not true?*

1. May develop a consumptive coagulopathy
2. May go into shock with concealed haemorrhage
3. Coagulopathy is treated with Heparin
4. Couvelaire uterus may develop
5. Oliguria and Renal failure are late complications

7. *Answer true or false for the following questions concerning venereal disease.*

1. The primary lesion, or chancre of syphillis, may occur on the vulva, in the vagina or on the cervix.
2. The lesion is painful but often neglected by the patient.
3. Healing of the chancre usually takes place in 5-6 weeks even without treatment.
4. The chancre appears 3-4 weeks after exposure.
5. Secondary syphilis is manifested by a generalized reaction with sore throat, headache, malaise, and fever.

6. Serology is always positive in secondary syphilis.
7. To date, smear and cultures are the only method of laboratory confirmation of gonorrhea. Complement-fixation tests are unreliable.
8. Some resistant strains of gonococcus are now being treated with Spectiomycin or Trobacine.
9. Because of the epidemic rise in gonorrhea, the dose of penicillin is double the standard tested in most texts.
10. Penicillin is still the drug of choice for the treatment of suspected gonorrhea.
11. One negative culture after treatment is required before a cure is obtained.
12. In treating the female, one should write a prescription for antibiotics for her partner in order to stop the epidemic cycle.

8. *Answer true or false to the following statements about carcinoma of the cervix.*

1. The treatment of choice in Toronto is radiotherapy.
2. If a 30-year-old female presented with a very early stage II carcinoma, she could be considered for surgery.
3. Carcinoma in situ does not invade past the basement membrane.
4. Treatment for carcinoma in situ in a 40-year-old female would be radiotherapy.
5. There is definitely more carcinoma of the cervix seen in the poor female of high parity.
6. Culposcopy and punch biopsy in a class III pap smear may make the diagnosis of carcinoma of the cervix and save the patient a cone biopsy.

9. *In endometriosis, which of the following is not true?*

1. The commonest site is the ovary.
2. Uterosacral ligaments and rectovaginal septum are common sites.
3. Infertility is common.
4. The most common age is 20-30.
5. Common in the higher socio-economic classes.

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PHARMACEUTICAL MANUFACTURERS OF CANADA 80

Grand Round Quiz — Answers

1(i). A. *Ruptured Gangrenous Appendix.* With the abdominal pains being associated with a large meal, always have G.I. tract on top of the list. Her L.M.P. was 7 days ago and negative, so ectopic is unlikely. Slight fever and slight elevation of WBC are seen in appendicitis. However, after rupture of the appendix, I would have expected her WBC to be higher than 11,000. No discharge and no history of PID would be significant information to rule out a gynaecological cause of her pain.

1(ii). C. *Haemorrhage Into a Twisted Cyst.* It is unusual to present with bilateral abdominal pain with a twisted ovarian cyst. The WBC is markedly elevated, of significance she had no elevation in temperature. If she did have a fever, one would think of P.I.D. The change in her vital signs shows that she may be bleeding internally and since we do not suspect an ectopic with a normal LMP, the next choice would be a twisted ovarian cyst with bleeding, especially if the mass is palpated.

2. All as true. The vagina has a very abundant blood supply.

3. 3. Narcotics are to be avoided if possible. Paracervical blocks have fallen into disfavour because of foetal bradycardia and occasional foetal death.

4. 5. Always do an episiotomy on a premature infant to facilitate an easy atraumatic delivery of the head.

5. 2. "Show" is usually not significant. Abruptio is usually painful and cervical polyps and vasa praevia are uncommon conditions.

6. 3. Heparin does not treat the coagulopathy. The only cure for the coagulopathy is to treat the cause. That is, the abruptio placenta, once treated, will allow the blood to re-establish its normal clotting mechanism within hours. Heparin can slow the process and give you time to act, but it is not the cure.

7.
- 1 — true
- 2 — false (usually a painless lesion)
- 3 — true
- 4 — true
- 5 — true
- 6 — true
- 7 — true (F.A. techniques not practical)
- 8 — true
- 9 — true
- 10 — true (still 60% effective rate)
- 11 — false (Public Health requires 3 negative smears)
- 12 — false (Contacts must be interviewed, examined and treated)

8.
- 1 — true
- 2 — false (Consider survery only for carcinoma that is confined to the cervix.)
- 3 — true
- 4 — false (Hysterectomy would be the treatment of choice.)
- 5 — true
- 6 — true

9. 4. The average age is 37 years old. Only 15% of endometriosis cases present before the age of 30.

(*Continued from page* 74)

disease) was 49.5% with an absolute five year survival rate of 35.5%. The five year survival rate for patients without metastases was 71.5%. Using *radium therapy alone,* Berven reported a five year survival rate of 13%. Langfelt-Andersen reported a survival rate of 24.2% with *electrocoagulation alone* and 4.1% with radiotherapy alone. Frischbier and Thomsen using *high energy electron therapy* reported a 70% five year survival rate with Stage I and II lesions and a 39% five year survival rate with Stage III and IV lesions (Huber's classification). The results of treatment for recurrences are poor with excision, external radiotherapy, or radium needle implantation.

Chemotherapy for carcinoma of the vulva is generally poor. Malkasian using both regional and systemic chemotherapy with cyclophosphamide, methotrexate and nitrogen mustard found no response in vulvar carcinoma. Treatment with intravenous 5-FU also showed no response. Way utilized local excision and 5-FU ointment for recurrences with no response. Hoffner and Frick utilized intermittent intravenous methotrexate therapy and noted a decrease in size of a para-aortic node for nine weeks as the only positive response in their series. They have since discontinued this form of therapy.

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- ☐ Bioavailability in Drug Therapy, M. Pernarowski, Canadian Pharmaceutical Association Journal, February 1971.
- ☐ Drugs, Drug Products and Prescribing Habits, D.N. Wade, Drugs, No. 2, 1971.
- ☐ The Physiological Equivalence of Drug Dosage Forms, FDD Symposium, June 26, 27, 1969.

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